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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,280	07/11/2001	Dong-il Cho	01580	9300

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EXAMINER

CHAPMAN JR, JOHN E

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 10/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/903,280

Applicant(s)

CHO, DONG-IL

Examiner

John E Chapman

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The drawings are objected because Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

The drawings are objected to because the reference numerals in Fig. 4 do not correspond with the description on page 8, lines 7-12.

Fig. 9 is incomprehensible. Where are the combs, springs, and inner and outer masses? Fig. 15(a) is incomprehensible. Where, for example, are the stationary sensing electrodes? See page 21, line 5.

Reference numerals should be provided for Fig. 14.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objections to the drawings will not be held in abeyance.

2. The disclosure is objected to because of the following informalities: Page 3, line 19, the symbol after "10" is unclear. Note also page 14, lines 21-24; page 17, lines 5-6; and pages 18, 19 and 21. Appropriate correction is required.

3. The following is a quotation of the first and second paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites a micro-gyroscope comprising a "oxide/polysilicon/metal triple layer for electrical isolation," but fails to recite any structural elements in the micro-gyroscope such that one element may be electrically isolated from another. Accordingly, the claim is incomplete and should recite structural elements in a micro-gyroscope which are electrically isolated. Furthermore, it is not clear from the disclosure how a polysilicon layer is "partially etched to accomplish the electrical isolation." Since polysilicon is conductive, it is not clear that partially etching a polysilicon layer would isolate anything. Furthermore, it is not clear how applicant provides electrical isolation. Although the specification describes etching away polysilicon films at the bottom area of a trench in Fig. 6d in order to obtain electrical isolation (page 14, lines 12-15), it is not clear how this provides electrical isolation for any elements. It is not clear what elements of a microgyroscope are illustrated in Fig. 6d, and it is not clear that etching away the polysilicon layer at the bottom area of the trench electrically isolates any elements of the microgyroscope. It appears to be applicant's intent to electrically isolate a driving spring from a sensing spring in a microgyroscope (page 13, lines 17-19). It is not clear that Fig. 6d illustrates either a driving spring or a sensing spring, and that the etched away areas of the polysilicon layer provide electrical isolation between the driving and sensing springs.

Regarding claim 3, it is not clear whether applicant's invention is to electrically isolate a driving spring from a sensing spring in a microgyroscope (page 13, lines 17-19), or a driving electrode from a sensing electrode (claim 3), or both. It is not clear that Fig. 6d illustrates either a driving electrode or a sensing electrode, and that the etched away areas of the polysilicon layer provide electrical isolation between the driving and sensing electrodes.

Regarding claims 9-10, the specification does not describe the tuning voltage being applied to either the driving spring or the sensing spring. Furthermore, it is not clear how the tuning voltage is applied to either the driving spring or the sensing spring.

5. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is not clear what elements in a micro-gyroscope are provided electrical isolation.

Regarding claim 2, there is insufficient antecedent basis for "the spring" in line 3. In addition, claim 2 is directed to a method limitation, and it is not clear that the recited method provides any structural limitation. It would not be evident from an inspection of a micro-gyroscope whether deposition depths had been "adjusted."

Regarding claim 3, applicant defines "decoupled" with regard to the suspensions and not the electrodes. See page 16, last line. Furthermore, it is not clear that the triple layer provides

electrical isolation. Rather it would seem that etched trenches in the polysilicon layer provides electrical isolation.

Regarding claim 4, there is insufficient antecedent basis for "the driving spring" and "the sensing spring."

Regarding claim 5, there is insufficient antecedent basis for a plurality of "driving springs" and "sensing springs."

Regarding claims 7 and 8, the symbol after "10" is unclear.

Regarding claim 8, it is not clear that the recited method provides any structural limitation. Since the sacrificial layer is removed in the process, it fails to set forth any clear structural limitation for the apparatus claimed.

Regarding claim 9, there is insufficient antecedent basis for "the driving spring" and "the sensing spring."

Regarding claim 11, there is insufficient antecedent basis for "silicon substrate" in line 2. In addition, sensing electrodes -- and not sensing springs -- are connected to the negative input of two charge amplifiers (page 20, lines 19-20).

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Muenzel et al.

Muenzel discloses a micro-gyrometer in Fig. 2, comprising a triple layer 2/3/24, in which polysilicon layer 3 is etched to provide electrical isolation trenches 10.

Regarding claim 4, driving spring 9 and sensing spring 17 are perpendicular to each other.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fujiyoshi et al. discloses a micro-gyroscope comprising frequency adjusting electrodes in Fig. 8.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Chapman whose telephone number is (703) 305-4920.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

jec  
October 9, 2002

  
JOHN E. CHAPMAN  
PRIMARY EXAMINER